REMARKS

In view of the preceding amendments and the comments which follow, and pursuant to 37 C.F.R. § 1.111, amendment and reconsideration of the Official Action of November 4, 2004 is respectfully requested by Applicants.

Summary

Claims 1 – 9 stand rejected. Claims 10 – 62 stand cancelled.

Claims 1 – 9 are pending following entry of the present remarks.

Election/Restrictions

As requested by the Examiner, Claims 13 – 50, which are drawn to the non-elected invention, have been cancelled.

Claim Rejections under 35 USC §112

The Examiner has rejected Claim 9 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The Examiner indicated that it is unsure as to what "characteristics" the Applicants are referring. Applicants respectfully traverse these rejections, and submit that one ordinary skill in the art would understand that resonant frequency characteristics of a particular structure correspond to the behavior (or dependency) of parameters of this particular structure as a function of the resonant frequency.

Claim 9 recites that the resonant frequency characteristics in the plasma excitation mode and the resonant frequency characteristics in the measuring mode are set to be equal to each other. Claim 9 is indirectly dependent on Claim 6 that recites that a resonant frequency measuring terminal is provided to measure the resonant frequency of the plasma processing chamber, in the vicinity of the end of the radiofrequency feeder. Thus, the resonant frequency characteristics recited in Claim 9 correspond to the behavior of parameters of the plasma processing chamber as a function of the resonant frequency.

In support, Applicants disclose that "the dependency of the impedance of the plasma processing chamber on the frequency is examined" (page 16, lines 7 and 8). Further, as another example, Applicants disclose that "an impedance characteristic curve and a phase curve are drawn by plotting the impedance Z and the phase θ versus the measuring frequency" (page 16, lines 17 – 20). Still further, Applicants disclose that "In this manner, the frequency characteristics of the capacitance between the above-described electrodes which generate a plasma can be directly defined, power can be more efficiently supplied to the plasma emission space, and further improvements in power consumption efficiency and in processing efficiency can be achieved" (page 18, lines 17 – 23). Hence, the resonant frequency characteristics recited in Claim 9 are directed to the behaviors of the impedance Z and phase θ parameters of the plasma processing chamber as a function of the resonant frequency.

Thus, in Claim 9 the resonant frequency characteristics which are related to the plasma processing chamber, both in the plasma excitation mode and in the measuring mode, are definite. Hence, Claim 9 is definite by particularly pointing out and distinctly claiming the subject matter which Applicants regard as the invention.

Accordingly, Applicants respectfully request that these claim rejections under 35 USC §112 be withdrawn.

Rejection of Claim under 35 USC §103

The Examiner has next rejected Claims 1 – 6, and 8 – 9 under 35 U.S.C. § 103 (a) as being unpatentable over Murata et al. (Murata) (U.S. Patent 5,423,915) in view of Patrick (Patrick) (US 5,474,648). Applicants respectfully traverse these rejections.

Claim 1 is directed to a plasma processing apparatus. The plasma processing apparatus comprises a plasma processing chamber having a plasma excitation electrode, a radiofrequency generator, a radiofrequency feeder, and a matching circuit. Further, Claim 1 recites that "a frequency which is three times a first series resonant frequency f_0 of the plasma processing chamber which is measured at the end of the radiofrequency feeder is larger than a power frequency f_e of the radiofrequency waves."

Murata and Patrick are both silent about a frequency which is three times a first series resonant frequency f_0 of the plasma processing chamber which is measured at the end of the radiofrequency feeder is larger than a power frequency f_e of the radiofrequency waves. This distinguishable claimed feature enables a reduction in the power required to achieve the same processing rate in the plasma processing chamber (see page 18, lines 1 – 10 of the specification). Further, the planar uniformity of the formed layer and the layer characteristics as conventionally achieved can be reduced, saving energy and reducing operation costs. When applied to a deposition apparatus, the deposition rate, the uniformity in layer thickness, and the isolation voltage can all be improved.

The Examiner stated that Murata does not teach the above recited distinguishable feature, but indicated that Patrick substantially discloses identical structure to that of the claims and stated that claimed properties or functions are presumed to be inherent. The Examiner concluded that a prima facie case of either anticipation or obviousness has been established. However, Applicants point out that the resonant frequency is correlated to the impedance of the plasma processing chamber and thus to the structure of the plasma processing chamber. Further since, Patrick does not teach or suggest a frequency which is three times a first series resonant frequency f_0 of the plasma processing chamber which is measured at the end of the radiofrequency feeder is larger than a power frequency f_e of the radiofrequency waves, then the impedance of the claimed plasma chamber is not anticipated or made obvious by Patrick's plasma chamber.

Hence, Patrick does not anticipate or render obvious neither the structure of the claimed plasma processing chamber, nor the resulting reduction in the power required to achieve the same processing rate in the plasma processing chamber, and nor the improved deposition rate, the uniformity in layer thickness, and the isolation voltage.

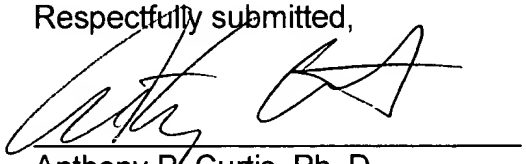
Accordingly, Claim 1 is allowable over Murata in view of Patrick. Claims 2 – 9, which are either directly or indirectly dependent on Claim 1, are also allowable for the

same reasons. Applicants respectfully request that these rejections pursuant to 35 USC §103 be withdrawn.

Conclusion

Therefore, in view of the above amendment and remarks, Applicant respectfully submits that this application is in condition for allowance and such action is earnestly requested. Applicants believe a one-month extension is due, and a corresponding check is enclosed. If for any reason, however, the Examiner feels that a telephone interview would be helpful in resolving any remaining issues the Examiner is respectfully requested to contact Applicant's undersigned attorney.

Respectfully submitted,



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